DIFFERENTIATING THINKING ABOUT SYSTEMS FROM SYSTEMIC THINKING

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ABSTRACT

Virtually every business function teaches students about its systems and subsystems. However, is this sufficient to prepare managers to work in the systems age? This study differentiates between learning about systems and learning how to think systemically. In addition, it provides initial results of a survey inquiring into how academics perceive, prioritize, and teach systems thinking.

INTRODUCTION

For years, well-respected management experts have said that business leaders must learn how to manage a system [3][4][5][8]. Universities have not ignored these warnings, and indeed the teaching of systems has become pervasive in business programs. Students are for example taught about production systems, accounting systems, and information systems. There is no question that learning about systems is important. A student's acquisition of operational skills is for example dependent on the conceptual knowledge they acquire at early stages of their education [9]. Consequently, students must first learn how business fits the systems paradigm, and what types of subsystems are embedded within it. They also need to learn about the various elements making up different subsystems in a business along with how they work and interact. However, a question of some importance is whether learning about systems is enough to adequately prepare managers to be successful in what some are calling the systems age.

While learning about systems is a necessary part of any manager's education, it is not the same as thinking systemically. For the past four hundred years we have been trained using the analytical paradigm [1]. Consequently, we view the terms analysis and thinking as synonyms. In reality, analysis is only one method for perceiving the world around us. Several authors have made the distinction between types of thinking. For example, analytic thinking attempts to understand a system by breaking it into its smaller parts and studying these parts in isolation [1]. Once the parts are understood the analyst tries to explain the behavior of the whole based on the behavior of the parts.

In contrast, synthetic thinking attempts to understand the larger context that the system operates within. Once the role of the system within the larger context is understood, the synthetic thinker can try to explain the behavior of the system based on that role. Dynamic thinking [6][7] examines how a system behaves over time, while closed-loop thinking seeks to understand how the interactions of various parts of a system feed back to shape the ultimate result of any intervention. Systems thinking combines these last three methods of thinking. However, despite evidence that systems thinking is a necessary skill for managers and that they require training to develop the skill [2], uncertainty remains regarding the role higher education is playing, or for that matter should play, in facilitating this task. This study addresses the role of systems thinking education in graduate management programs.